LIST OF CLAIMS

1. (Currently Amended) A method for preparing and screening a plurality of compounds, said method performed in or on ~~compounds being handled in~~ a bulk of a stationary phase, the method comprises the sequential steps of

(a) performing a synthesis of ~~synthesizing the~~ compounds by a chemical reaction performed in the bulk of a ~~the~~ stationary phase,

(b) separating the compounds in or on the same bulk of the stationary phase using a mobile phase; and

(c) screening of the separated compounds in or on the same bulk of stationary phase,

wherein said screening involves biological or biochemical methods; wherein the stationary phase is a thin-layer chromatography plate and wherein the stationary phase is suitable for sequential synthesis.

2. (Previously Presented) A method according to claim 1, comprising additional analysis of the separated compounds in the bulk of the stationary phase or an isolated sample of the compounds.

3. (Canceled)

4. (Canceled)

5. (Previously Presented) A method according to claim 1, wherein the compounds are synthesized in the bulk of the stationary phase by introducing chemical reagents involved in the chemical reaction into the bulk of the stationary phase thereby generating a reaction mixture.

6. (Previously Presented) A method according to claim 1, wherein each of the chemical reagents is individually introduced into the bulk of the stationary phase.

7. (Previously Presented) A method according to claim 1, wherein each of the chemical reagents is introduced into the bulk of the stationary phase in a solution.

8. (Original) A method according to claim 7, wherein the solution comprises one or more solvents.

9. (Previously Presented) A method according to claim 1, wherein the reaction mixture is localized in a well-defined area in the bulk of the stationary phase.

10. (Previously Presented) A method according to claim 1, wherein chemical reagents involved in a specific synthesis of the compounds are introduced to a well-defined area on the bulk of the stationary phase.

11. (Previously Presented) A method according to claim 1, wherein various syntheses are performed in parallel on separate and well-defined areas of the same bulk of stationary phase.

12. (Previously Presented) A method according to claim 11, wherein synthesis of the plurality of compounds on the same bulk of a stationary phase provides a library of different compounds.

13. (Original) A method according to claim 1, wherein the chemical reaction is assisted by microwave radiation.

14. (Original) A method according to claim 13, wherein the chemical reaction is exposed to microwave radiation by placing the bulk of the stationary phase comprising the reaction mixture in a microwave cavity.

15. (Original) A method according to claim 1, wherein the stationary phase comprises silica gel, aluminum oxide, cellulose, graphite, molecular sieve and polymers.

16. (Original) A method according to claim 15, wherein the stationary phase is silica gel.

17. (Original) A method according to claim 15, wherein the stationary phase is aluminum oxide.

18. (Original) A method according to claim 15, wherein the stationary phase is polyacrylamide.

19. (Original) A method according to claim 1, wherein the bulk of stationary phase is dispersed onto or between an inert backing(s).

20. (Currently Amended) A method according to claim 19, wherein the inert backing comprises glass, plastic, fibrous materials, paper, metals or mixtures thereof ~~such as aluminum coated paper~~.

21. (Previously Presented) A method according to claim 19, wherein the layer thickness of the bulk of the stationary phase when dispersed onto or between the inert backing(s) is 10 ~tm to 5 mm.

22. (Previously Presented) A method according to claim 19, wherein the combined bulk of stationary phase and inert backing is a silica gel thin-layer chromatography plate with a plastic backing.

23. (Original) A method according to claim 19, wherein the combined bulk of stationary phase and inert backing is a silica gel thin-layer chromatography plate with a glass backing.

24. (Original) A method according to claim 1, wherein the separation is performed by allowing at least some of the components of the reaction mixture to migrate in the bulk of the stationary phase.

25. (Original) A method according to claim 24, wherein the compound(s) are allowed to migrate in the bulk of the stationary phase by application of chromatographic means.

26. (Original) A method according to claim 24, wherein the separation of the compounds is performed in the presence of a liquid phase.

27. (Original) A method according to claim 26, wherein the liquid phase is a solvent or mixtures of solvents and optionally one or more auxiliary agents.

28. (Original) A method according to claim 27, wherein the liquid phase comprises ethyl acetate/hexane, methanol/dichloromethane/ammonia, methanol/acetonitrile/ammonium phosphate and n-butanol/pyridine/water/glacial acetic acid.

29. (Original) A method according to claim 24, wherein the compounds are separated in the presence of an electric field.

30. (Original) A method according to claim 29, wherein the compounds are separated by electrophoresis.

31. (Canceled)

32. (Currently Amended) A method according to claim 1, wherein the biological and biochemical methods are selected from a group consisting of bioautographic techniques, overlay techniques, immunostaining, autoradiographic techniques, enzymatic analysis, derivatisation, receptor-binding assays, reporter gene assays, cell proliferation assays, physiologic assays, transient transfection ~~or~~ and melanophor pigment-translocation.

33. (Canceled)

34. (Original) A method according to claim 1 for the synthesis, separation and screening of combinatorial libraries of compounds.

35. (Original) A method according to claim 34, wherein the compounds of the combinatorial libraries are synthesized by multi-component reactions.

36. (Original) A method according to claim 34, wherein the combinatorial libraries comprise compounds such as arylpiperazines, sulfonamides, amino acids, amides, alcohols, amino alcohols, aldehydes and amino aldehydes.

37. (Previously Presented) A method according to claim 1, wherein the screening step involves the detection of biological effects of a compound interacting with a microorganism or an enzyme.

38. (Previously Presented) A method according to claim 37, wherein the screening step involves the detection of biological effects of a compound interacting with a microorganism.

39. (Canceled)

40. (Previously Presented) The method of claim 1, wherein the biochemical methods involve detection of changes in catalytic activity produced by interaction of the compounds and a catalyst by observing changes in absorption of light or detection of fluorescence due to a modification of the compounds or of a substrate.

41. (Previously Presented) The method of claim 40, wherein said catalyst in an enzyme.